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CENTRAL INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

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17 April 1974

MEMORANDUM FOR: Mr. George Bennsky
Director, Office of
Fuels and Energy
Department of State

SUBJECT : Additional Oil Sharing Analysis

1. Attached are the Four Tables (A-D) that you and Bill Hale (NSC) requested, showing the impact of the conservation, fuel switching, and stock drawdown measures in four hypothetical oil crisis. Also attached is a new Table 1, which includes an all Arab, Iranian, and Nigerian embargo of the United States, Western Europe, and Japan. This severe case was included to present an example where the United States would have to export domestic production under some of the sharing plans.

2. We will continue to provide further analyses as you may require.

Attachments:
as stated.

Distribution (S-6099)
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ANALYSIS OF CONSERVATION, FUEL SWITCHING, AND STOCK DRAWDOWN MEASURES
UNDER VARIOUS RESTRICTIONS ON WORLD OIL TRADE IN 1975

The attached tables show the effects of four hypothetical restrictions on the world oil trade. Tables A through D show the levels of import and consumption under normal conditions, under conservation and fuel switching measures, and under conditions of stock drawdowns. These tables also show how long stocks would last in each crisis if 85% of normal consumption in each of the countries were to be maintained. In the case of an all Arab, Iranian, and Nigerian embargo of the United States, Western Europe, and Japan, Table A shows that Western Europe's oil stocks would be depleted after 60 days. At that point, the United States, Western Europe and Japan would go into oil sharing. The imports and consumption under the various oil sharing programs for this crisis are shown in column three of Table 1.

In the case of an all Arab embargo of the United States, Western Europe, and Japan, Western Europe's stocks run out after 83 days. Oil sharing begins at this point. In the last two cases considered, an all Arab embargo of the United States alone and a Saudi limit of production to 8.5 million barrels per day, oil sharing is not required during the first year of the crisis. In the embargo against the United States alone, US stocks would last for 600 days, and the Saudi limit on production would not require stock drawdowns at all.

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TABLE 1: Free World Oil Trade Under Various Sharings Programs With a 15 Percent Cut In Consumption Required Before Any Sharing Plan Goes Into Effect ^{1/}

1975		Normal Oil Flows		All Arab, Iranian, & Nigerian Embargo of US, Western Europe & Japan		Saudi Production Limited to 8.5 Million b/d		Libyan Embargo of US & Western Europe		All Arab Embargo of US, Japan and Western Europe		All Arab Embargo of US Only	
		Imports	Consumption	Imports	Consumption	Imports	Consumption	Imports	Consumption	Imports	Consumption	Imports	Consumption
No Diversions	United States	8.0	19.0	3.0	14.0	7.8	18.8	7.8	18.8	4.6	15.6	4.6	15.6
No Sharing	Western Europe	16.0	17.0	1.5	2.5	15.7	16.7	13.6	14.6	4.8	5.8	16.0	17.0
	Japan	6.6	6.6	1.4	1.4	6.5	6.5	6.6	6.6	3.8	3.8	6.6	6.6
Vital Needs, Sharing I ^{2/}	United States	8.0	19.0	0	11.0	7.8	18.8	7.8	18.8	0	11.0	5.4	16.4
	Western Europe	16.0	17.0	3.8	4.8	15.7	16.7	13.6	14.6	8.8	9.8	15.4	16.4
	Japan	6.6	6.6	2.1	2.1	6.5	6.5	6.6	6.6	4.4	4.4	6.4	6.4
Vital Needs, Sharing II ^{2/}	United States	8.0	19.0	0	11.0	7.8	18.8	7.8	18.8	0	11.0	5.4	16.4
	Western Europe	16.0	17.0	3.8	4.8	15.7	16.7	13.6	14.6	8.8	9.8	15.4	16.4
	Japan	6.6	6.6	2.1	2.1	6.5	6.5	6.6	6.6	4.4	4.4	6.4	6.4
An Arithmetic Mixing of Consumption Sharing & Import Sharing ^{3/}	United States	8.0	19.0	-0.7	10.3	7.8	18.8	7.8	18.8	1.8	12.8	6.8	17.8
	Western Europe	16.0	17.0	4.6	5.6	15.7	16.7	13.6	14.6	8.0	9.0	14.4	15.4
	Japan	6.6	6.6	2.0	2.0	6.5	6.5	6.6	6.6	3.4	3.4	6.0	6.0
Combination of Import Sharing, Essential Needs Sharing, & Oil Consumption Sharing	United States	8.0	19.0	-3.0	8.0	7.8	18.8	7.8	18.8	.2	11.2	7.1	18.1
	Western Europe	16.0	17.0	6.1	7.1	15.7	16.7	13.6	14.6	9.1	10.1	14.2	15.2
	Japan	6.6	6.6	2.8	2.8	6.5	6.5	6.6	6.6	3.9	3.9	5.9	5.9
Limits on Cuts in Consumption ^{4/}	United States	8.0	19.0	-2.1	8.9	7.8	18.8	7.8	18.8	1.2	12.2	7.1	18.1
	Western Europe	16.0	17.0	5.5	6.5	15.7	16.7	13.6	14.6	8.4	9.4	14.2	15.2
	Japan	6.6	6.6	2.5	2.5	6.5	6.5	6.6	6.6	3.6	3.6	5.9	5.9

1. Threshold Consumption Levels: US - 16.15; Western Europe - 14.45; Japan - 5.61.

3. Fifty percent Import Sharing and 50% Consumption Sharing.
 4. Import sharing used as a basic schema, and no bloc's consumption cut is 10% greater than the cut of another bloc.

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Table A
All Arab, Iranian, and Nigerian Embargo of the
United States, Western Europe and Japan

	Normal Oil Flows		10% Conservation Cut		5% Fuel Switching		45 Days of Useable Stocks		Million Barrels	Stocks Drawdown	
	I*	C**	I	C	I	C	I	C		Rate MB/D	Days
United States	8.0	19.0	6.1	17.1	5.2	16.2	5.2	16.2	360	2.2	163
Western Europe	16.0	17.0	14.3	15.3	13.4	14.4	13.4	14.4	720	11.9	60
Japan	6.6	6.6	5.9	5.5	5.6	5.6	5.6	5.6	297	4.2	70

* Imports of oil.
** Consumption of oil.

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Table B
All Arab Embargo of the
United States, Western Europe, and Japan

	Normal Oil Flows I*	Flows C**	10% Conservation Cut		5% Fuel Switching		45 Days of Useable Stocks		Million Barrels	Stocks Drawdown	
			I	C	I	C	I	C		Rate MB/D	Days
United States	8.0	19.0	6.1	17.1	5.2	16.2	5.2	16.2	360	.6	600
Western Europe	16.0	17.0	14.3	15.3	13.4	14.4	13.4	14.4	720	8.6	83
Japan	6.6	6.6	5.9	5.9	5.6	5.6	5.6	5.6	297	1.8	165

* Imports of oil.
** Consumption of oil.

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Table C
All Arab Embargo of the United States Alone

	Normal Oil Flows <u>I^A</u>	Flows <u>C^{AA}</u>	10% Conservation Cut		5% Fuel Switching		45 Days of Useable Stocks		Million Barrels	Stocks Drawdown	
			<u>I</u>	<u>C</u>	<u>I</u>	<u>C</u>	<u>I</u>	<u>C</u>		Rate MB/D	Days
United States	3.0	19.0	6.1	17.1	5.2	16.2	5.2	16.2	360	0.6	600
Western Europe	16.0	17.0	16.0	17.0	16.0	17.0	16.0	17.0	720	0	Infinite
Japan	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	297	0	Infinite

* Imports of oil.
** Consumption of oil.

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Table D

Saudi Arabian Limit on Production to 8.5 Million Barrels a Day

	Normal Oil Flows		10% Conservation Cut		5% Fuel Switching		45 Days of Useable Stocks		Million Barrels	Stocks Drawdown	
	I*	C**	I	C	I	C	I	C		Rate MB/D	Days
United States	8.0	19.0	7.8	18.8	7.8	18.8	7.8	18.8	360	0	Infinite
Western Europe	15.0	17.0	15.7	16.7	15.7	16.7	15.7	16.7	720	0	Infinite
Japan	6.6	6.6	6.5	6.5	6.5	6.5	6.5	6.5	297	0	Infinite

* Imports of oil.
 ** Consumption of oil.

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